

- c. a ~~Symbol Boundary Estimator~~ maximum likelihood estimator, the maximum likelihood estimator configured for estimating a symbol boundary using the samples of the baseband signal, computing a maximum likelihood estimate of a mean of phase errors using the samples of the baseband signal with the estimated symbol boundary, computing a maximum likelihood estimate of a carrier frequency offset using the maximum likelihood estimate of the mean of the phase errors and computing a maximum likelihood estimate of a clock error using the maximum likelihood estimate of the carrier frequency, estimating a symbol boundary using the samples of the received signal,
- d. a ~~Phase Error Estimator~~ computing the maximum likelihood estimate of the mean of the phase error;
- e. a ~~Carrier Frequency Offset Estimator~~ computing the maximum likelihood estimate of the carrier frequency offset; and
- f. a ~~Clock Error Estimator~~ computing the maximum likelihood estimate of the clock error.

Claim 5(Cancelled).

Claim 6(Currently amended): A computer program product for clock and carrier recovery at a receiver of a direct sequence spread spectrum communication system, the clock and carrier recovery being accomplished using a predefined training sequence, each symbol of the predefined training sequence being spread by a

- a. viii. instruction means for computing the a phase error introduced in the transmitted signals training sequence from the phase angle of the differential symbol and the differential;
- i. ix. instruction means for accumulating the phase error using the a maximum likelihood weighting scheme;
- j. x. instruction means for incrementing the value of the counter by unity; and
- k. xi. instruction means for repeating steps the instructions b-j ii-x until the value of the counter reaches a value L to obtain the maximum likelihood estimate of the mean of the phase errors, L being the an estimation length in terms of the a number of Differential Binary Phase Shift Keying symbols.